

**Benefit/Cost Ratio Update**

**For**

**Bay State Gas Company's**

**Current Energy Efficiency Program Portfolio**

**Prepared by**  
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## I. INTRODUCTION

GDS Associates, Inc. was contracted by Bay State Gas Company (BSG), a NiSource subsidiary, to update the benefit/cost ratios filed on February 1, 2001 with the Massachusetts Department of Telecommunications and Energy (DTE), as part of the Company's Energy Efficiency Program Plan for the period May 1, 2001 through April 30, 2004.

This project entailed taking the program-level cost-effectiveness spreadsheets, including all of their existing input values used to calculate the B/C ratios in BSG's February 1, 2001 filing and: (1) modifying the avoided gas supply cost forecast to reflect updated avoided gas supply cost values (developed by Resource Insights, Inc. dated 12/6/01)<sup>1</sup>; and (2) using a revised discount rate (5.19%<sup>2</sup>) for all net present value calculations. These two changes were made to all of the programs identified in BSG's original filing, including: BSG-specific energy efficiency programs and the regional GasNetworks® programs that BSG also participates in.

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<sup>1</sup> Values used in BSG's original filing were based on an earlier forecast (7/99 Avoided Gas Supply Costs Study, prepared for the Massachusetts' electric utility Avoided Energy Supply Cost Working Group by Resource Insights, Inc. in July 1999.

<sup>2</sup> The 5.19% value was recommended by the DTE and is currently being used B/C modeling by other electric and gas utilities in Massachusetts. It represents a forecast of the 1/2/03 30-year T-bond rate, equal to the year-weighted average ask yield published in the Wall Street Journal on 8/13/2002 for regular T-bonds maturing more than 20 yrs.

## II. UPDATED RESULTS

The B/C ratios resulting from these two changes are summarized in the following table (original ratios are also presented for comparative purposes). Please refer to Appendix A for a copy of the B/C model output page for each BSG program. GasNetwork® program model outputs are included in Appendix B.

**Table 1 – Benefit/Cost Ratio Update Results**

<b>Bay State Gas Program</b>	<b>Total Benefits (NPV 2000\$)</b>	<b>Total Costs (NPV 2000\$)</b>	<b>B/C Ratio (Updated/Original)</b>
<b>Residential</b>			
- Residential Custom Measures Program	\$4,996,602	\$2,155,473	2.32/1.97
- Tumblewash Program (see Note 1)	-----	-----	--- /2.20
<b>Subtotal - Residential</b>	<b>\$4,996,602</b>	<b>\$2,155,473</b>	<b>2.32/2.12</b>
<b>Low Income</b>			
- Low Income Custom Measures	<b>\$5,149,124</b>	<b>\$2,497,614</b>	<b>2.06/1.75</b>
<b>Commercial &amp; Industrial</b>			
- Multi Family Custom Measures Program	\$8,065,558	\$5,382,138	1.50/1.26
- Small C/I Custom Measures Program	\$6,890,841	\$4,647,837	1.48/1.26
- Large/Medium C/I Custom Measures Program	<u>\$20,732,197</u>	<u>\$7,029,453</u>	<u>2.95/2.51</u>
<b>Subtotal – Commercial &amp; Industrial</b>	<b>\$35,688,197</b>	<b>\$17,059,428</b>	<b>2.09/1.78</b>
<b>Grand Total BSG</b>	<b>\$45,834,323</b>	<b>\$21,712,515</b>	<b>2.11/1.85</b>
<b>GasNetworks® Regional Program</b>	<b>Total Benefits (NPV 2001\$)</b>	<b>Total Costs (NPV 2001\$)</b>	<b>B/C Ratio (Updated/Original)</b>
<b>Residential</b>			
- High Efficiency Heating Equipment Program	\$74,694,306	\$25,234,572	2.96/2.39
- HE Water Heat ( <i>includes Small C/I Market</i> )	\$9,511,991	\$5,852,484	1.63/1.32
- Energy Star™ Homes Program	<u>\$43,602,235</u>	<u>\$18,487,807</u>	<u>2.36/1.91</u>
<b>Subtotal – Residential</b>	<b>\$127,808,532</b>	<b>\$49,574,863</b>	<b>2.58/2.08</b>
<b>Commercial &amp; Industrial</b>			
- High Efficiency Heating Equipment Program	\$5,464,081	\$2,495,654	2.19/1.76
- Infrared Heating Program	<u>\$6,885,299</u>	<u>\$1,911,084</u>	<u>3.60/2.98</u>
<b>Subtotal – Commercial &amp; Industrial</b>	<b>\$12,349,380</b>	<b>\$4,406,738</b>	<b>2.80/2.29</b>
<b>Grand Total GasNetworks®</b>	<b>\$140,157,912</b>	<b>\$53,981,601</b>	<b>2.60/2.10</b>

Note 1: Updated B/C ratio for Tumblewash Program not shown – this program is no longer being offered by the Company

## **APPENDIX A – BSG Program B/C Model Outputs**

**Residential Custom Measures Program**

**Low Income Program**

**Multifamily Custom Measures Program**



**Small C/I Custom Measures Program**

**Large & Medium C/I Custom Measures Program**

## **APPENDIX B – GasNetworks® Program B/C Model Outputs**

**Residential High Efficiency Heating Equipment Program**

## **High Efficiency Water Heating Program**

**Energy Star™ Homes Program**

**C/I High Efficiency Heating Equipment Program**

**Infrared Heating Program**